

Acquisition and distribution of technical reports and conference proceedings on science and technology in Korea

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Abstract

According to a survey in 2006 conducted by Korea Institute of Science and Technology Information (KISTI), technical reports and conference proceedings are the most important types of grey literature for researchers in Korea. Important, recent, and detailed research results are stored in technical reports and are presented at conferences. Despite their importance, these types of grey literature are associated with difficulty when seeking to access. As a national science and technology information center, KISTI has made an effort regarding the acquisition and distribution of technical reports and conference proceedings on science and technology to promote easy access. KISTI has transformed grey literature into white literature to support R&D researchers.

This paper examines the acquisition and distribution status and analyzes the usage statistics pertaining to technical reports and conference proceedings in Korea. KISTI has acquired and distributed domestic and foreign technical reports and conference proceedings for several decades. KISTI provides metadata and the full-text of R&D technical reports produced by government funded projects and conference proceedings through National Discovery for Science Leaders (NDSL). For an analysis of the usage statistics for technical reports and conference proceedings, the frequency of full-text downloads and the use of Document Delivery Service (DDS) are used. The KISTI statistics system, termed the Online Analytical Processing (OLAP) system, shows that conference proceedings and technical reports were used 1,921,150 times and 1,140,411 times, respectively from September of 2009 to September of 2011. These statistics indicate that open access for conference proceedings and technical reports experiencing heavy use by researchers in Korea. KISTI is using new tools and communication skills to distribute more grey literature in effort to assist R&D researchers. New ways of distributing grey literature through Social Networking Services such as Twitter, Facebook are even available on smartphones for users in Korea in the smart age.

Keywords

Grey Literature, Conference Proceeding, Technical Report, Social Network, Usage of

Introduction

Grey literature such as technical reports and conference proceedings contains detailed research results as a resource for scientific and technical information. Moreover, this type of literature is published frequently than journals. Therefore, grey literature is considered to be an important information resource, but locating and accessing grey literature is not easy. In fact, it is often overlooked by information centers and libraries. It is important to create access points and provide grey literature to researchers for the improvement of research and development (R&D) in Science and Technology. As a national science and technology information center, Korea Institute of Science and Technology Information (KISTI) took acquisition and distribution steps related to technical reports and conference proceedings on science and technology. KISTI has thus transformed grey literature into white literature to support R&D researchers. This paper examines the acquisition and distribution status and analyzes the usage statistics for technical reports from government agencies and scientific research groups and conference proceedings from academic societies in Korea. In addition, the new methods distributing grey literature through the internet or via smartphones will be mentioned. This offers directions regarding the creation of access point for grey literature according to the new information environment. Although much effort has been made and while these sources of grey literature are produced in great numbers in an environment containing more advanced means of communication technology, getting access to this type of literature remains challenging.

Objective and Scope of the Study

An objective of this study is to understand users need of grey literature and the status of acquisition and distribution of the grey literature in Korea.

Scope of this study is focused on acquisition and distribution of technical reports and conference proceeding through National Discovery Science Leaders (NDSL) in Korea.

Method of the Study

Literature review for grey literature is conducted for understanding domestic and overseas trends. This paper examines the acquisition and distribution status and analyzes the usage statistics pertaining to technical reports and conference proceedings in Korea. For an analysis of the usage statistics for technical reports and conference

proceedings, the frequency of full-text downloads and the use of Document Delivery Service (DDS) are used. This study use data from KISTI statistics system, the Online Analytical Processing (OLAP) system. For new access points for grey literature in Korea, actual Social Networking Service in NDSL is invested.

Literature Review

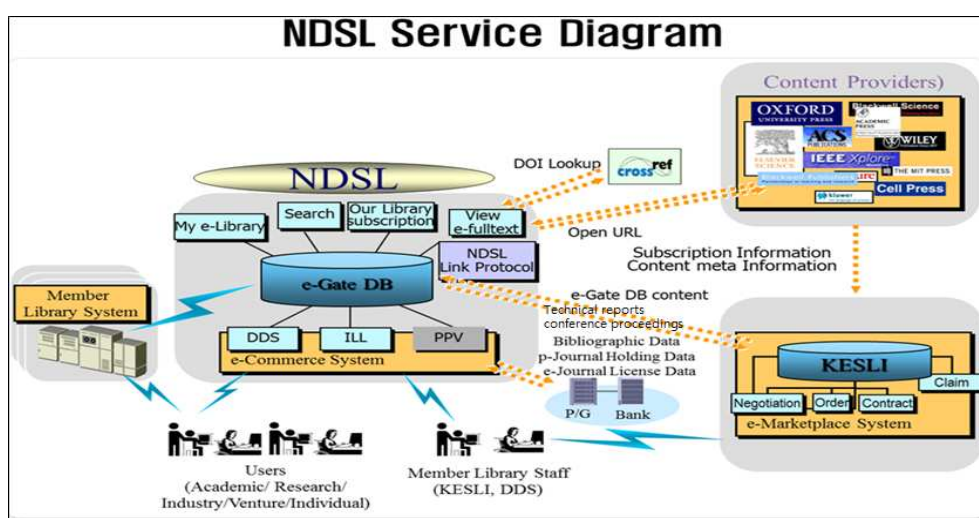
Choi and Cho (1997) categorized grey literature into light, medium, and dark grey literature and studied grey literature production, related databases, and online access through the internet. Debachere (1995) reported that grey literature is frequently original and usually recent. Yoo (2009) noted that conference proceedings are simpler to obtain in libraries than other types of grey literature, such as reprints, because this type has a greater possibility for publication. Most libraries and information centers in Korea subscribe to foreign digital conference proceedings through a purchasing consortium called KESLI (Korea Electronic Site License Initiative) because this initiative allows scholars to obtaining information quickly and reduces the necessary effort by librarians' regarding the collecting and cataloging of this information resources. Nam and Cho (2006) studied the importance grey literature for scholars by analyzing references in the Korean journals listed in Science Citation Index (SCI). According to their study, grey literature represents about 24% in all references types used. KISTI studied the development of an acquisition and distribution model for the foreign grey literature in 2002 and 2006. Jeffery and Asserson (2005) described a systematic process for grey literature and suggested a R&D process for its management. McDermott (1995) mentioned the importance of national level bibliographic control for grey literature. Gelfand (2000) emphasized an international cooperation network for this type of literature.

Survey for Grey Literature (GL)

Librarian and information specialists in 38 science and technology institutes participated in a survey conducted by Korea Institute of Science and Technology Information (KISTI) in 2006. According to this survey results, technical reports and conference proceedings are the most useful types of grey literature for researchers in Korea because most research results are stored in technical reports and presented at conferences. An analysis of result of this survey shows the difficulties in each field for grey literature are as follows: acquisition 36.5%, identifying & accessing 27.3%, bibliographic control 27.3%, and managing 89.5%. The most desired format for grey literature is an electronic format (the internet) at 74.5%. Electronic version is more popular than printed version. The most desired format for records was full-text at 57.7% and metadata & abstracts at 32.7%.

Overview of Grey Literature in KISTI in Korea

KISTI's has collected grey literature in print or micro-film format and distributed it through Document Delivery Service (DDS) since 1962. However, users have wanted electronic versions of grey literature since the internet age began. This tendency was detected in the survey result. Based on the survey result, KISTI tried to create more access points for technical reports and conference proceedings on a portal system, termed the National Discovery for Science Leaders (NDSL) (Fig. 1). NDSL contains articles, patents, conference proceedings, technical reports, trend information and analysis reports, standards and other types of grey literature. Electronic and printed journals and conference proceedings can be searched by R&D researchers to construct comprehensive metadata. E-conference proceedings such as the IEEE/IEL electronic library proceedings are subscribed by Korean Electronic Site License Initiative (KESLI) consortium members for joint purchasing



<Fig. 1> NDSL (National Discovery for Science Leaders)

Acquisition and Distribution of ST GL on the NDSL System

■Conference Proceedings

KISTI holds 16,051 conferences proceedings in paper format. Distribution of science and technology conference proceedings on NDSL is focused on making access points than providing full-text, so metadata for domestic and overseas conference proceedings was built. Table 1 shows that NDSL has 6,913,399 records of metadata for overseas print conference proceedings. Users can identify and locate the print conference

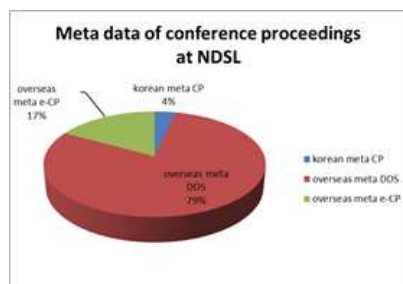
proceedings and ask document delivery for them. NDSL hold 1,479,345 metadata of overseas e-conference proceedings and 304,935 metadata of Korean e-conference proceedings metadata. If users' organization subscribes the e-conference proceedings and one of Korea Electronic Site License Initiative (KESLI) members, users can access full-text of conference proceedings through metadata on NDSL. Even though KISTI does not provide full-text for conference proceedings, users can identify, locate and access them.

<Table 1> Metadata of ST Conference Proceedings

format	E-Conference Proceedings		Print Conference Proceedings*
matadata	Metadata of Korean CP	Metadata of Overseas CP	Metadata of Overseas CP for DDS
No. of metadata	304,935	1,479,345	6,913,399

*KISTI print CP holdings: 16,051 titles

The metadata of overseas conference proceedings for document delivery accounted for 79% of all metadata from Fig. 2. Korean conference proceedings can also be accessed through the ST Academic Society Village (<http://society.kisti.re.kr>) constructed by KISTI.



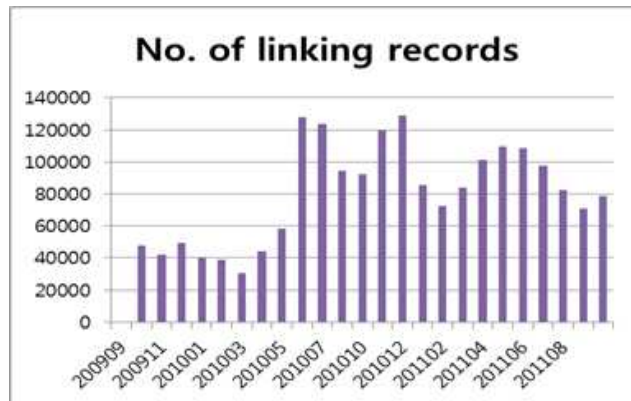
<Fig. 2> Metadata of Conference Proceedings at NDSL

KISTI analyses the usage statistics from the Online Analytical Processing (OLAP), KISTI's statistics system. In Table 3, the numbers of uses for conference proceedings linking to full-text shows 1,921,150 records. If users' institutes did not subscribe to the proceedings, the users cannot access full-text versions of e-conference proceedings. In such case, users can use Document Delivery Service for a document. The numbers of

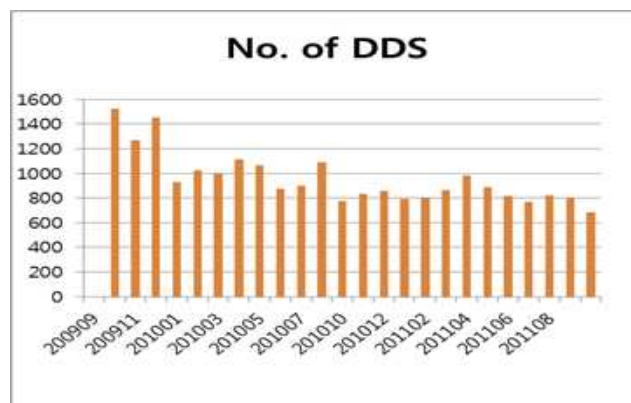
Document Delivery Service requests for conference proceedings through the NDSL were 22,520 records from September of 2009 to August of 2011. There were more usage requests for e-conference proceedings that involved linking to a full-text version than that of the number of requests for the paper Document Delivery Service. The usage numbers for the paper the document delivery is slowly declining.

<Table 2> Usages Types of Full-Text Linking vs. DDS at NDSL (2009/9-2011/8)

type of use	full-text linking	DDS	Total
No. of records	1,921,150	22,520	1,943,670



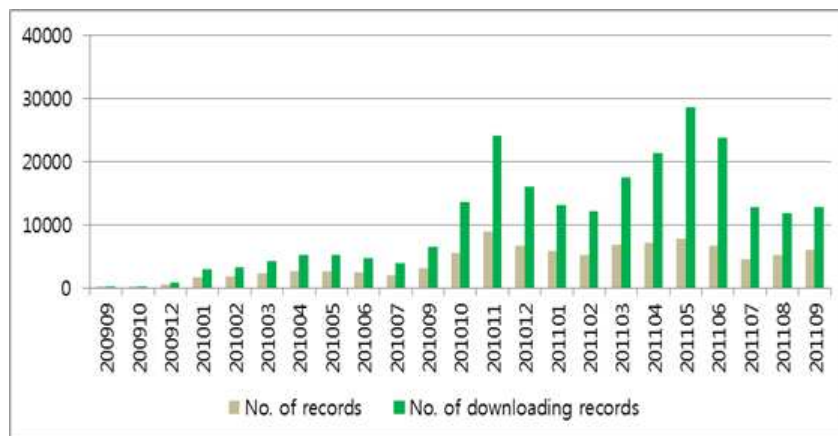
<Fig. 3> Usages Requests for Linking to Full-Text Versions for CP through NDSL Metadata



<Fig. 4> Usages Request for DDS for CP through NDSL Metadata

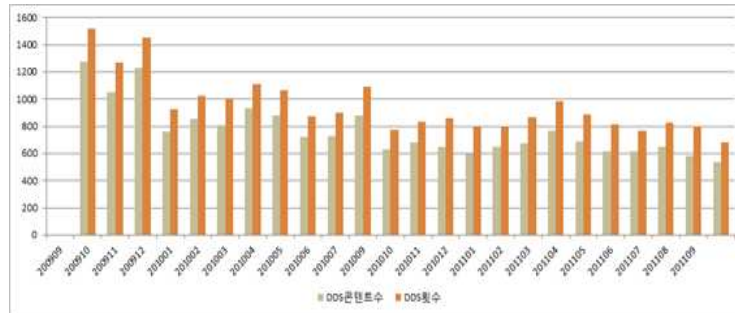
■ Technical Reports

KISTI provides science and technology technical reports that contain national R&D information obtained through the National Science and Technology Information Service (NTIS) system. NDSL provides full-text of 132,732 domestic e-technical reports. The usage numbers related to domestic e-technical reports are increasing gradually. Before this service, it was difficult to access to full-text of national R&D technical reports over the internet. The numbers of download records are 789,554 records for 2009-2010 (12 months) and 1,140,411 records for 2010-2011 (12 months). The numbers of downloads full-text of technical reports increased by 144%. Providing easy access to full-text of Korean government funded R&D research results in technical reports is important for other researchers in Korea.



<Fig. 5> Usage of E-Technical Reports (2009-2011)

KISTI holds 53,064 titles of domestic and overseas print technical reports and 149,955 titles of overseas micro-SRIM technical reports. NDSL provides metadata for technical reports for them but some of them do not have metadata. Fig. 6 shows the usage data for the Document Delivery Service for technical reports, showing a gradual reduction. However, users are still use Document Delivery Service for technical reports because some of them are still in print format only or because e-technical reports are not available to the public.



<Fig. 6> Usage of Document Delivery Service for Technical Reports (2009-2011)

New Ways for distributing GL with Social Networking Services

Satisfying users' needs and providing more convenient services, KISTI is expanding the number of access points for grey literature to exceed that of a digital library. KISTI is attempting to construct new ways of distributing grey literature system using Social Networking Services (SNSs). KISTI joined Twitter for this (@NDSL_kr), developing a service for users. The Twibort search system (ndsl_kr twibort) provides 1,000 NDSL records when users short search terms in the Twitter interface. The result can transferred to Twitter users and other social media services such as Facebook. Users also can access GL on NDSL through a smartphone while moving, meaning that they can access GL anywhere, and anytime.



<Fig. 7> NDSL SNS System



<Fig. 8> GL for a Twibort Search and with a Smartphone



<Fig. 9> NDSL via Twitter and Facebook

Users can access NDSL GL through a smartphone (<http://m.ndsl.kr>). Fig. 10 shows the NDSL interface for a smartphone. The metadata and abstracts for one of National R&D technical reports on a smartphone is shown.



<Fig 10> NDSL Technical Reports on a Smartphone (Mobile)

The NDSL homepage on the web and on a mobile can be accessed using QR code. Users can read QR code with a smartphone QR code reader application.



<Fig 11> QRcode for accessing NDSL through Facebook

Conclusion

Issues pertaining to the change from grey to white

KISTI has managed non-commercial distribution channels for grey literature for several decades and will continue in an effort to play a central role as a supporter for R&D researchers in Korea.

There are new ways of producing grey literature such as institutional repositories, new ways of communication using social media and etc. In spite of the development of information technology and tools, it is still difficult to access and identify grey literature. The effort of offering new tools and channels with which to access and disseminate scientific and technical grey literature should be continued to support R&D researchers. Additional ideas are given below.

- Identifying, making access points and collecting electronic and print GL
- Increasing metadata for GL on the web as an access point
- Providing full-text GL on the web
- Using new technology and tools for dissemination, e.g., smartphone, the iPad
- Participating social networking services: new ways of communication

- Providing other types of GL, e.g., fact data, statistics
- Discovering new types or formats for GL
- Continuing Document Delivery for paper-only GL
- Cooperating with other domestic or overseas GL networks
- Finding and using institutional repository for GL
- Adapting new research environments and channels for ST communication
- Protecting intellectual property
- Archiving GL

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